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Innovation-Artificial Intelligence: Challenges of the Right Against a Digital Society

Innovación–Inteligencia artificial: retos del derecho frente a una sociedad digital

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ABSTRACT

In the context of the intelligent and digital society, there are changes in the competencies and role of legal professionals, who, in addition to the essential legal and procedural knowledge, also have to acquire skills to understand and use technological tools that allow the implementation of new behaviors and relevant acts in the legal world such as smart contracts. The purpose of the article is to describe the main challenges facing the law in Colombia in the context of the intelligent and digital society through the documentary analysis of the corresponding regulations and jurisprudence

Keywords: Smart and digital society, legal challenges, competence.

RESUMEN

En el contexto de la sociedad inteligente y digital se presentan cambios en las competencias y el papel de los profesionales del derecho, los cuales además de los conocimientos jurídicos esenciales y procesales, también han de adquirir habilidades para la comprensión y uso de herramientas tecnológicas que permiten la implementación y desarrollo de nuevas conductas y actos relevantes en el mundo jurídico como los contratos inteligentes. La finalidad del artículo es describir los principales retos que afronta el derecho en Colombia frente al contexto de la sociedad inteligente y digital mediante el análisis documental de la normativa y jurisprudencia correspondiente.

Palabras clave: Sociedad inteligente y digital, retos del derecho, competencias

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INTRODUCTION

At the end of the 20th century a great debate about globalization took place, people wondered if it's implementation and impact should be accepted or not. Today, that big question has been overcome and admitted as an inexorable reality which it's effects are expressed in macro scenarios as geopolitics, economy, finances, art, science, technology, etc.., and in the daily situations experienced by the human beings (Mora, 2003, pp.24.26). In principle, these changes were noted slowly, later their exponential increase resulted in the advent of a new era named in the Annual Assembly of the World Economic Forum that was accomplished in Davos (Switzerland). Right there, the founding president, the Swiss Klaus Schwab and Michael Hansen, declared that the "4th Industrial Revolution" was started.

Although, it has an economic content inside, this industrial revolution, as the previous ones, involve transformations in each area of people's lives, including education, which is why this revolution has to be considered as a tool that gives to people the enough skills to face the new challenges that come with the new technologies and the new actual economic processes (Hansen, 2018).

The conjunction of the globalization and the 4th industrial revolution, within these, the information and communication technologies (TIC) and the artificial intelligence; have generated what is known as a great "Tsunami", due to the development of these both elements, which transform all the knowledge and workforce training processes currently known.

This approach has been assumed by the Universidad de la Costa, a high quality higher education center, which spare no efforts to support the processes oriented to the learning restructuring in the different areas of knowledge, among which, the Law that maintains its validity, but it has to be adapted to the demands, skills and competences that all the students and professionals must have in the emerging scenarios.

This reengineering of the knowledge is approached through three main pillars that are: Digital Innovation, Biologic Innovation, and Physical innovation; which will create a significant impact on the megatrends that are initially classified into five categories, economy, business, government, society, and individual.

Dilemmas that have to be solved to face the transformations in the labor field and require skills as: solve complex problems, critical thinking, staff management, emotional intelligence, team work coordination, service orientation, decision making, negotiating, and cognitive flexibility. (World Economic Forum, 2018, p.11).

These skills joined with the use and comprehension of the technologic and digital tools, are primary input of the legal scholars in their professional training and current professional activities to confront the challenges of a digital intelligent society that incorporates processes as the *smart contracts, big data, artificial intelligence*, among other relevant activities in the legal world.

According to the above mentioned, the aim of this article is to describe, in general terms, what are those challenges that law has to confront in an intelligent and digital society context. In specific terms, what are the research areas and competences that have to be foster in the students of the Universidad de la Costa.

FROM TELECOMMUTING TO PROMETEO

In 1983 an important even with national connotation happened, the creation of the decree 1766 of September 16th 1983, through which the president of the republic Virgilio Barco extended the delegation of constitutional functions. The act issued through a Telefax from South Korea.

This decree was sued for its invalidity to argue that the original decree marked with the number 1766 didn't exist, signed and endorsed by the officials abovementioned. In addition, the plaintiff affirmed that it was transmitted through the Telefax services and stressed that this was an "exotic, unprecedented, tele-decreto in the Colombian public administrations". This pretention was denied by the Consejo de Estado in the Sala de lo Contencioso Administrativo by order of 23 October 1990, among other reasons he states:

The legal science cannot ignore or stand on sidelines of the modern technology innovations and processes, especially the ones which belong to the electronic field, imposed by the implementation and transmission of thoughts. Law as such is the expression of a culture, that at the moment of establishing rules which regulate behaviors and manifestations, of both the governing and the governed, the technologies discoveries and inventions cannot be reversed, forgotten or relegated because they are part that particular culture. (CE, 1990).

It can be said, this fact marked the incipient age of these technologies in Colombia. On the one hand, the recognition of the authenticity of the document sent by Telefax, and on the other the extension of the delegation to the Delegate Minister, according to the article 128 of the Colombian constitution.

Years later, the economic liberalization or "The economic modernization program" started in parallel with the 1991 Political Constitution. According to Jaramillo these events "are no more than another step to achieve the deregulation of the foreign trade, which is formulated as the objective of economic policy by the international bodies" (2012, p. 20.). Beyond the debate about the effects and ways of how these processes have evolved over the years, it is important to state that these economic procedures have accelerated the changes that are translated to new ways of thinking, living and feeling the local and the global.

The established model allowed a big access to science and technology in a variety of areas related to education, development, culture, economic production, commerce, work, health, and politics, among others. Although in principle, there was a lack of awareness, in the XXI century, the new technologies have an exponential advance in business activities, as attested by the National Department of Statistics.

Since 2009, the service activities related to the TIC are becoming more important to the development of the other sectors. The use of these services has increased by 44%, in 2013 they represented 32,1% of all the activities required for the development of other sectors. (MINTIC, 2015)

This is not only oriented to the economic sector; the use of TIC is a priority in the teaching and learning process of the education sector, and definitely it has allowed that actions as online purchases, digital signatures or digital contracts, become quotidian.

However, the fact that this is considered common, does not mean it is exempt from some phenomena that have legal relevance. That is where the law professionals' interests appear.

The digital and smart society that is in a progressive technologic evolution creates challenges in the legal field that have to be addressed. While it is difficult to keep the same speed, it is possible to conceive principles and precepts that guide the right regulation, in this sense, there are three study areas posed.

Labor law contracts

The latest studies affirm in the future there will be not only artificial intelligence machines, that put people's labor stability in danger, but the automation processes will be more agile and will produce more accurate results in the different economic areas.

Pages (2019) presents the results of the Frey and Osborne's study in 2017, where they warned that "the 47% of jobs in EEUU would be automated by the IA". In addition, they mention other studies with similar methodologies that indicate figures "between 48% and 73% of automation potential in different countries around the world" (p, 133).

The automation and the artificial intelligence, among other technologies and scientific innovations that enable efficiency and effectiveness in economic and labor activities, are related to the 4th industrial revolution and, for certain people, represent a risk to the labor rights and warranties, that is why the International Labor Organization has set up a high-level commission which has as concern the future of work, also it has created an official platform of the OIT, to do a further examination about the workers' future, and what it has named as the implementation of social justice in the XXI century (OIT, 2008).

This seems ironic, the social justice of the XX century has not been fully developed when it is necessary to face the one of XXI, which would have implications as the elimination of trade unions organizations that have represented the fight for the workers' warranties and rights.

It is disturbing, but the current context promotes new ways of labor relationships that become into new ways of contracting, in the Colombian case, on May 1st, 2012 the presidency of the Republic and the labor ministry in cooperation with the information technologies and telecommunications ministry issued the decree 0884 of 2012, which regulates the law 1221 of 2008, with the purpose of promoting the telecommuting as a labor modality in the country. During the development of the process, it has promoted the international telecommuting fair and it has been created and exposed the famous document "Libro Blanco el ABC del teletrabajo en Colombia", known as the first methodologic approach oriented to the planation and implementation of labor models that make the most of the advantages of TIC and generates a major benefit which covers the organizational, productive, business, technical fields , without forgetting the equilibrium between the labor life and the personal life.

However, these contractual relationships are not excluded from challenges, that is why it is necessary to think about how to elaborate an individual employment contract and a regulatory framework of the labor force where the level of competitiveness and the employer and employee rights are respected because it is important to discuss issues as: redesign a different social security model, the provision and supplies of elements that constitute a salary, and one essential labor element, clarity about the displacement and transport allowance, or about how are the infrastructure costs of the labor activity assumed (Rolón y Sanchéz, 2018).

Big Data

One of the realities that human beings have to face, nowadays, is the creation of an intrepid technologic tool, collecting personal information through *Big Data.* This mechanism has two interpretations: on one hand,

> (…) it is a resource through which the financial and insuring companies, which are the means to analyze large amounts of data of the financial costumers and to give solutions to problems in the respective market or to take decisions relating to the legal acts celebrated by those bodies, including their subscription conditions. (Londoño,2019)

On the other hand, there is no clarity about if the result of the data processing of this tool is invading people's privacy. After an exhaustive analysis of information that has been tapped in the strategic business activities of commercial chains that use the information about people's identity, to the point, they can analyze likes and preferences and use this data to manipulate the customer, the problem emerges when the protection of that data is in a seesawing between the circumstances and the enterprises' interests, and at the moment to determine if the information provided in a private way by people, can violate its use.

Also, the information of these databases caused by a past event, should not stay in a perpetual way.

Both readings adduce to the management and collection of the information *habeas data* and of the named *right to be forgotten* contemplated in the general regime of personal information protection regulated by the law 1266 of 2008, law 1582 of 2012, and its regulatory decree 1377 of 2013.

To the first approach, this right affects the effectiveness of big data, and therefore it restricts the development of these innovations.

By contrast, the second approach states that although this right should be easy to exercise "Today, the citizens are overwhelmed by the reproduction of their information in uncountable databases, or even worst, saturated by the fact of being contacted by people who should not have their personal information" (González, 2018).

Analyzing this information by the use of *Big Data*, people's likes, preferences and desires can be determined, and also their decision making can be manipulated. The best example was the last presidential

elections in EEUU, where Mr. Trump won because of the *"fake-news"* that were guided through the architecture and algorithms resulting from the analysis system of big data collected for years, inside the 2.230 million users that have placed their trust in an enterprise, like Facebook, giving and posting their personal information on it.

As can be appreciated, people's identity is dramatically violated and it is at the reach of any entity that wants to control it.

The challenge is to elaborate regulations regarding *Big Data*, with a large scope that goes beyond the protection of these personal data. In other words, it is necessary to protect not only the collected data, but also the use of the profiles and the data analysis that can affect people's image, intimacy and privacy. Similarly, it has to allow the development of these innovations that become a very recognized tool for the business and public sector, as it is stated in CONPES 3920 of 2018.

Smart contracts

Nick Szabo, a legal scholar and computer scientist, presented in 1997 the idea of carrying out the contractual stipulations in a digital system, along with the need of implementing safety protocols (criptografía) (Díaz, 2019, p.4), alluding to the hypothetical smart contracts that take shape for a decade with the cryptocurrency Bitcoin and with the new technologic revolution of the Blockschein, on which cryptography is based, " that allows the recording, storage and sharing of the digital data in a distributed form in multiples platform participants without the intervention of a centralized administrator" Mahecha (2019).

According to Raskin (2017)

> Smart contracts are defined as agreements wherein execution is automated, usually by computers. Such contracts are designed to ensure performance without recourse to the courts. Automation ensures performance, for better or worse, by excising human discretion from contract execution.

While it is true that smart contracts and the Blockschein technology are in an early stage, they have strong potential due to its implementation in the different law areas and the advantages for its automatic execution, without the intervention of third parties and costs reduction.

Boada (2009) refers that framework contracts "are optimal for the application of smart contracts, whose operational aspects are susceptible to automating with the aim of making them "smart" in the sense of self-executing". However, there are certain elements that are not susceptible to code rewriting for its accomplishment, because it is just a matter of time to become common.

Now, it does not mean smart contracts displace the law professionals, although it will demand a deep knowledge about the operation to be able to translate from the legal language to the technical programming language (Dinero, 2018), that is to say, these technologies require the legal part at the beginning and at the end, because the Blockshein technology will not be able to maintain its position without legal rules.

Artificial intelligence

The intelligence exhibited by the machines still far from the futuristic complexities that relate it with the conscience, strictly speaking, the artificial intelligence (AI) covers a broad spectrum of functions including the algorithms exposed on internet search engine or specific calculation operations. The current state is the AI, tight or weak, can overcome the human being in a particular activity, although it is outdated in many activities that a person can do. However, the researchers' objective in the development of general or strong AI overcomes human beings in most of the cognitive tasks (2019).

For the time being, the AI is a versatile tool for different sectors, from the planation of the harvest, to the analysis of data to improve the production of an industry.

In Colombia, there are big enterprises like Movistar that use "300 robots to support different work areas, as sales, petitions system of claims and complaints, invoicing networks, among others" (Cigüenza, 2019), or ventures as Chekar.co which develops platforms for the sale of vehicles using the IBM cloud.

The IE is immersed in almost all the technologies, TIC, big data, nanotechnology, etc., this is why states and international organizations coordinate efforts to create rules to regulates and warrant its use.

Colombia in 2019 joined the OCDE Ministerial Council's agenda about the AI. In this agreement are stated the guidelines and principles which orient the public policies of AI (MINTIC, 2019).

One of the most relevant facts of the use of AI can be observed in the Fiscalia General de la Nación where an application is used to associate criminal acts in different cities and towns, recently in 2019, the AI Prometea was adopted in the constitutional court and it will help the institution with the statistical analysis of selection and preselection of actions for protection related to health issues (Rivadeneira, 2019). In both cases, the AI supports the legal practitioners in their decision making that related to its function in public politics.

CONSTITUTION OF "UNIVERSIDAD DE LA COSTA"

The article 67 of the political constitution of Colombia states "the education is a right and a public service with a social function; it looks for the access to knowledge, science, technique, and the cultural good and values", a precept that underlies the design of the educative politics by the government, with this perspective the law 115 of 1994, named Ley General de la Educación, conceptualizes the education as "a permanent individual, cultural and social training process which has its basis on an overall conception of the human being, of the dignity, rights, and duties", in the same vein, the law 30 of 1992 which organizes higher education affirms in the article 1 "Higher education is a permanent process that allows de human beings potentials development in a comprehensive way (…)".

The common normative element that is underlined is the education defined as a "permanent process" which, according to the Constitutional Court, refers to "a progressive obligation that should be warrant by the State, society, and family" (T-068 de 2012).

This perspective enables the possibility to analyze two situations. First, the right must be warranted by the public education system or by the society through private institutions. Second, the right must be "promoted" and this verb is the one that gives relevance to the participation, because it is no enough the commitment to assure, it is also necessary the society decides the education they want and need.

The abovementioned is exposed in the constitutional framework with the article 69 about the guarantee of universities autonomy "Universities will be able to set their own guidelines and to follow their own statutes, according to law, and taking into account the Constitutional Court concept "the right that attends to higher education institutions to auto determine its ideology, administration model and statutes, among other aspects" (T-612) de 2017).

This right includes, among others, that universities would "create, organize, and develop their academic programs", which need to be in accordance with the aims that law and jurisprudence have given to education in Colombia.

The previous clarification is, if it is required, a justification by the private educational institutions for the design and execution of educational processes which are in harmony with the global changes from which Colombia is no exempt, conversely, it is trendy to implement significant transformations that, without ignoring humanistic values and principles that inspire the Constitution, encourage an education which can face the called "Fourth Industrial Revolution".

Nevertheless, this new age finds critical voices that warn about great challenges, among them "one of the most important is the ethic and values crisis, where it would be necessary to learn how to describe the relationship between humans and robots" (López, Lovato & Abad, 2018, p.156). It is a valid concern in the

way that the inherent efficiency and effectiveness of technologies have already reached the point where the automation of the activities does not limit the production sector.

> (…) they are moving to all types of sectors. Higher education institutions identify students in danger of desertion using big data. In the art world, the IBM's Watson Beat software creates songs autonomously. Even today there are robots (teacher bots) that teach other robots to recognize images and to analyze patrons. (ASOCOLDEP, 2019)

Then, will machines replace us? What would be our future as a society? Will education be limited to technology? Will be the end of the social disciplines?
Actually, any of these questions is valid, because the point is not about if technology has perverse effects in society, by the opposite, the point is oriented to question the idea of having education without technology, according to Hans Vestberg

> As technology evolves, it's become increasingly clear to me that our education systems are not preparing people for the opportunities that 5G and other Fourth Industrial Revolution breakthroughs will present. Educators, policy-makers, non-profits and the business community need to confront this fact – even if (especially if) this means questioning longstanding practices and trendy assumptions. (2018).

Consecutively, the author make emphasis on the remark that it is not about to favor technology over humanities, conversely, he thinks they are complementary.

> The idea here is not to privilege some subjects over others; rather, it's to yank us out of the increasingly pointless dichotomy between sciences and humanities. To master this new epoch, we need both – and we need to integrate them as never before. What we really need, in short, are genetic engineers who have deeply absorbed Brave New World and historians who are capable of sophisticated data analysis. The sciences have ever more to give to the humanities and vice versa (Vestberg, 2018).

In other words, the imminence of the Fourth Industrial Revolution has to deepen debates about the competences and skills that are required in the different sciences and disciplines to find genuine socio-cultural and economic balance, and do not be stuck on the preterit discussion about socioeconomic classes, because the scientific advances have made a big contribution to the democracy in all levels, from the political as the social network influence in the Arabian spring (Reporteros sin fronteras, 2012) to the academic (virtual education, experience socialization and cultural events on streaming), including the possibility to give access to the health service in remote communities with telesurgery or robotic surgery (Eveleth, 2014; Redacción médica, 2019).

Higher education should break away from traditional patterns and incorporate more tools in the educational process and the "lifelong learning" concept" (Vestberg, 2018), for the purpose of having future professionals of all areas of knowledge with more competences.

> To reinforce these skills, it is recommended the development of innovation communities, in a similar spirit to triple helix (academy, private sector and government), with the intention of addressing focused and local issues. Among the members of the community is necessary to consider role models, leaders and success stories. In these communities is possible to get the engagement and commitment of multiple stakeholders to achieve their short or long-term vision (Magisterio, 2019).

The Universidad de la Costa is aware of this need, this is why it has a philosophical, normative and pedagogical sense to face the educational challenge in the fourth revolution implementing a reengineering of knowledge based on three pillars:

- *Digital Innovation*, which understand the internet of things is the evolution of the digital interconnection with greater coverage, better access to different technological devices, the promise of closing the socioeconomic disparities, to comprehend the planet and its resources through the appropriated knowledge about the data analysis collection (Evans, 2011).
  Innovation also includes Big Data, The IE and TIC, among others.
- *Biological Innovation*, the genetic and the synthetic biology are projected in several fields, as the improvement of variety of plants, disease treatments, and energy sources.
- Physical Innovation, innovations of tangible nature most in vogue are the robotic, nanotechnology, new materials, autonomous vehicles, 3d print.

Each of these innovations is reflected in infrastructure, the projects of the university, and all the academic programs. Regarding the law degree, it has reinforced the access and use of resources as a database, file repository, documents digitalization and, implementation of platforms for the teaching activity designed by the university in an interdisciplinary process between faculties.

Moreover, a space for academic research has been promoted with hotbeds, young researchers, updating talks and seminars, but also, study groups that have boosted the autonomous learning in emergency cases.

The economic categories, of business, government, society, and individual, are assumed as crosscutting that represent the objectives inside the learners' comprehensive training, because they are sceneries with an impact on the pillars abovementioned.

Eventually, the Universidad de la Costa in general, promotes competences or skills that learners have to adopt to face the fourth industrial revolution.

In particular, the law degree has included different components of skills in its curriculum. Below there is the description of each:

- Complex problem solving: it refers to a learning methodology based on the learning based on problems (ABP), didactics that are commonly appreciated in jurisprudential analysis workshops, where the student, through collaborative work, identify legal problems of a certain situation and propose a hypothesis according to the law and justice.
- Critical thinking, it is observed; most of cases, in hermeneutic workshops, where learners are encouraged to explore the different conceptions of the doctrine and jurisprudence to make a contrast with the categories exposed previously, in order to build "The self-directed, self-disciplined, self-regulating and self-correcting thinking" (Pérez, 2016, p. 42).
- Service orientation, with business and interdisciplinary approach, they operate implementing seminars and experience socialization in this context.
- Creativity and emotional intelligence, give learners an extra value to the comprehension and approach of the problems and solutions, this component is verified and marked in the teaching practice activities.
- To know how to negotiate and cognitive flexibility, go hand with hand in the sociocultural contexts and hypermedia environment, due to this, it is necessary to include new views and capacity of adaptation to no estimated or new situations, in this case, the challenges of the digital innovation which offer new reflection and study aspects.

Curricular elements, new skills and infrastructure support are the main tools to give the Universidad de la Costa law students the opportunity to complement their studies of law, but now, with a more realistic and universal approach.

CONLCUSIONS

There are many challenges the educational system in general have to face, and the Law in particular, within the context of the Fourth Industrial Revolution, specially, to modify the traditional model, however, for this it is necessary to have an accompaniment and training on infrastructure and technologic tools which allows learners and future professionals to acquire the skills needed to be competitive.

Beyond the ideological, economic, and political discussion which implies this new age, nobody can fail to recognize that innovations as artificial intelligence, *big data,* smart contracts*,* among others, are part of the everyday life of all and each citizen.

In the professionals and law scholars case, this scenery of the fourth industrial revolution, more than be dangerous for considering technological advances can displace their functions, offers a range of opportunities, but they need to acquire skills like programming, which allows the future professional in law "to learn to make a lobby with data analysis, to automate mass lawsuits, and to make online research" (Asocldep, 2019).

Another aspect is the study and design of regulatory instruments that feed and consolidate the national sovereignty or the international community, which in an extreme case, can be divided into two clear situations; the ones who love and enjoy the traditionally and manually elaborated things, or the ones who prefer things made by the artificial intelligence in a cold and calculated way.

The human being will decide, individually, which of both worlds is the best.

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